

## The Huling Branch ATV Recreation & Watershed Improvement Project

The Huling Branch AML Reclamation/ATV Recreation & Watershed Improvement Project was one of the most extensive and complex surface mine reclamation projects undertaken by the Pennsylvania Abandoned Mine Land (AML) program to date. The project addressed three major concerns that were associated with the 103-acre AML site located in the heart of Pennsylvania's 307,140-acre Sprout State Forest, that is maintained by the Pennsylvania Department of Conservation and Natural Resources (PA DCNR), Bureau of Forestry.

The first and primary concern was to eliminate four Priority 2 (P2) near vertical dangerous highwalls (DHs) from past surface mining that were in excess of 70 feet (ft.) in height and had a combined length of over 6,000 linear feet (L.F.). Associated with the four separate DHs was a massive 103-acre Priority 3 (P3) spoil area (SA) which contained a large amount of acid forming materials. During the surface mining, collapsed entries that were discharging highly contaminated acid mine drainage (AMD) from previously underground mined areas were intersected. The backfilling and reforestation reclamation plan reclaimed the DHs and SA by utilizing both the Forestry Reclamation Approach (FRA) and conventional backfill/compaction methods. Located all around and on top of the DHs and SA were segments of the 50-mile-long PA DCNR Whiskey Springs All-Terrain Vehicle (ATV) trail system and a 40-acre ATV "play area." The recreational use of the trail system and play area had attracted intense public visitation to areas off of the designated trail to the area containing the DHs and SA. The unauthorized use of the AML site by ATV riders and others resulted in numerous ATV accidents and injuries, several of which required a life flight helicopter to transport the victims. The reclamation plan eliminated access to the unauthorized ATV riding areas and re-established and maintained portions of the Whiskey Springs ATV trail that were impacted by the construction of the project.

The second concern was to maintain and re-establish 3.6 miles of the project construction site access that is a functioning segment of the Whiskey Springs ATV trail system. Portions of the DHs and SA reclamation plan were intersected by the ATV trail. This section of the trail was closed to the public during construction of the project. The 3.6-mile dual use of the rehabilitated and maintained construction site access/ATV trail was restored after construction to promote recreational and economic redevelopment. The trail is open for recreational use from Memorial Day to the last weekend in September and is reopened mid-January to April 1. Portions of the trail are also used for the annual Rattlesnake National Enduro which is the 5th of 9 rounds of the 2017 Kenda American Motorcyclist Association (AMA) National Enduro Championship Series. The national race begins in Cross Fork, PA, which is one-half hour north of the Huling Branch AML site. The national race is sponsored locally by the Brandywine Enduro Riders (BER) and the National Enduro Promotions Group (NEPG). The reclamation project, including the reconstruction of a portion of the ATV trail system, is contributing to increased economic and recreational opportunities and benefits northcentral Pennsylvania while improving the overall safety for users of the Whiskey Springs ATV trail.

The third and final objective of the project was to reduce AMD impacts upon both surface and groundwater discharges emanating from the project site. This was achieved through alkaline addition and other AMD source abatement/amelioration techniques including hydrologic controls and identification, and removal and/or special handling of acid forming materials. On-site AMD sources included discharges from abandoned underground mine workings, buried coal refuse with a very high sulfur content, and acidic unreclaimed surface mine SA. While it was clear that design elements of the Huling Branch AML Reclamation Project aimed at addressing AMD impacts would not completely eliminate those impacts, it was believed that incorporating these measures into the project reclamation plan would result in a long-term reduction in pollution load and reduce the scope of AMD complexity of future AMD treatment and watershed restoration work. Similar previous Pennsylvania source abatement projects such as the Office of Surface Mining Reclamation and Enforcement's (OSMRE) 2012 National Award Winning Dents Run AML/AMD Ecosystem Restoration Project have produced the proof of concept for this approach. With respect to the Huling Branch AML Reclamation Project, post project monitoring results clearly indicated similar trends in pollution load reduction.